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- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the unit close to the sea shore, contact your local distributor.



About ISO 9001

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.



About ISO 14001

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

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●Specifications, designs and other content appearing in this brochure are current as of October 2009 but subject to change without notice.



PCU0759B

WATER CHILLERS

SINGLE SCREW
COMPRESSOR
Water Cooled CUWD Series



R-134a

HFC134a

Use of new refrigerant HFC134a with zero ozone depleting potential. Achieves an energy-saving with high COP.

Reliability

Adoption of a semi-sealed single screw compressor in pursuit of efficient operation and long-life of the heat source equipment.

User Friendliness

An intuitively easy to use control panel provides a comfortable management.



Network Management

In addition to the Modbus, capable of constructing networks based on Daikin's original DIII-net.

Daikin Chiller Fulfills Customer Needs.

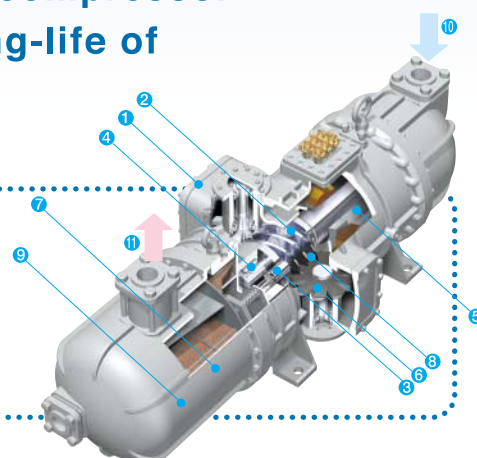
Single Screw Compressor

Equipped with an Efficient, Durable Semi-hermetically Sealed Screw Compressor.

Semi-hermetically sealed single screw compressor in pursuit of efficient operation and long-life of the heat source equipment.

60,000
Sales volume

- ① Casing
- ② Screw rotor
- ③ Slide valve
- ④ Ball bearing
- ⑤ Motor
- ⑥ Gate rotor
- ⑦ High efficient oil separator
- ⑧ High-low pressure differential lubricating mechanism
- ⑨ Bearing lubricating oil for models using new refrigerant
- ⑩ Refrigerant inlet
- ⑪ Refrigerant outlet



Equipped with a Newly Developed, Highly Efficient Compact Compressor.

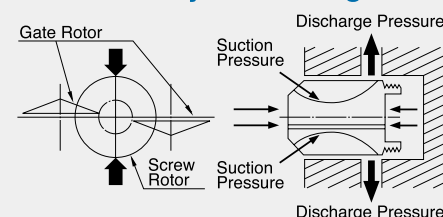
High Operational Efficiency Reduces Energy Loss.

High Accuracy and High Durability.

Low Vibration and Sound Levels.

Lightweight Compact Design Save space.

Durable Construction Increases Inspection Intervals thereby Decreasing Maintenance.



New refrigerant and High COP

HFC134a

The high pressure refrigerant HFC134a is at a low aeration rate from outside, and during maintenance, the discharge of refrigerant into the atmosphere is little due to the pump-out mechanism, etc.

As a result, now is capable of supporting wide variety of application for air-conditioning of relatively large-scale buildings and for cooling of factories.

COP4.8 or more

The optimised design of each component enabled the equipment to clear COP 4.8 or more that achieves an energy saving.

Stability of Power Supply

As the electric power demand increases, the power supply condition can be much severe. CUWD series prevent serious incidents and each compressor has a power fuse for backstop of casual accident.

Reverse Phase Protection:

Even when a reverse phase connection occurs because of a defective work, damage due to the compressor's inverse rotation can be prevented.

Open Phase Protection:

It is useful function for factory use where maintenance is continually carried out around the power supply. the machine is protected from the dielectric breakdown caused by an abnormal heating of the motor.

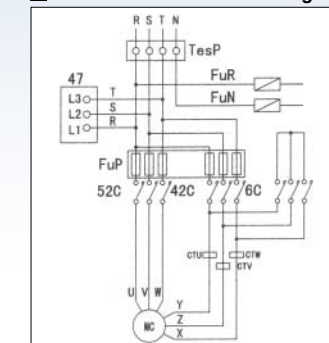
Unbalanced Voltage:

The motor is protected from the abnormal heating by detecting the unbalanced voltage. It is useful for factory use where the unbalanced voltage can occur due to an increase of single-phase load or a tight power receiving capacity.

Unbalanced Current:

CUWD series can detect the unbalanced current because it is difficult to detect the error by unbalanced voltage only in case of the low loaded compressor.

■ Main Circuit Connection Diagram



Electronic Expansion Valve

An electronic control maintains high performance optimising superheat in a rapid change of operation status.

Electrical control of superheat realises stable high performance

The lower the superheat becomes, the lower the compressor performance is. In extreme cases, the refrigerant cannot evaporate and the liquid compression can cause a failure. On the contrary, if it becomes higher, a water heat exchanger performance degrades. While the superheat is set to 5-7°C with a thermal expansion valve, CUWD series control the superheat to 4°C with its electric expansion valve, and carry out a stable and efficient operation.

Thermal expansion valve

5~7°C



Electronic expansion valve

4°C

Compressor protection

Even when the operation status is unstable because of the low temperature of cooling water or even when the load is low by low refrigerant flow, PID control (*) provides a stable refrigerant control and protects the compressor. Also avoids a failure due to the liquid compression, monitoring the compressor's discharge gas temperature.

*:PID:Proportional Integral Derivative

New control panel with LCD display

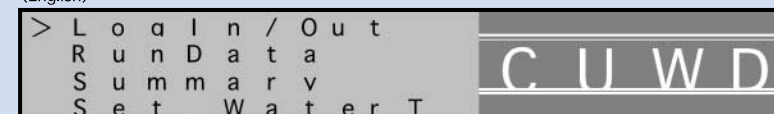
Support for Three Languages (English, Chinese, and Japanese)



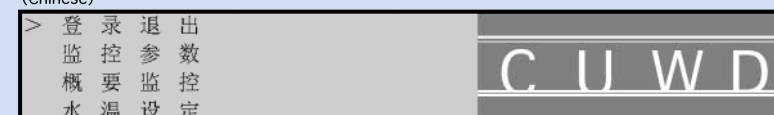
New LCD control unit allows you to change the display language to either English, Chinese, or Japanese while holding internal data. Provides a high usefulness on the operation site in the globalising twenty-first century.

■ Menu Screen Example

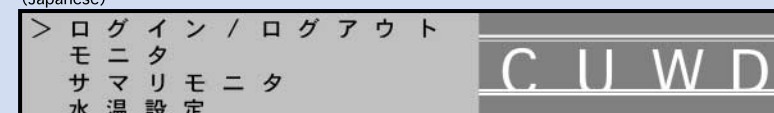
(English)



(Chinese)



(Japanese)



Step-less Capacity Control

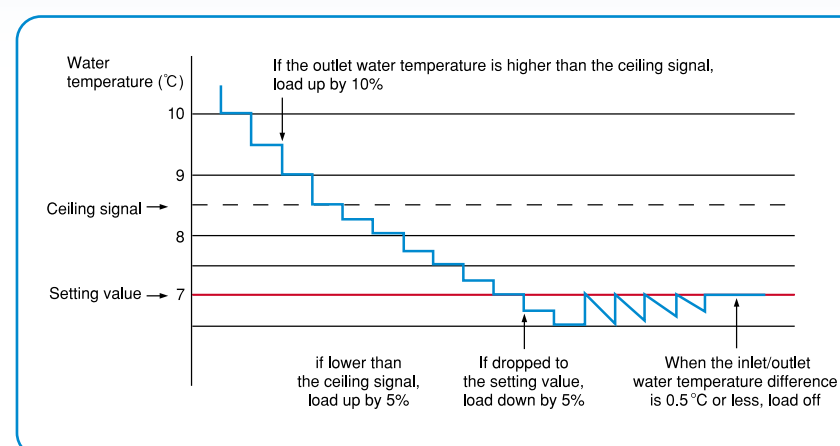
Enhances the system stability by controlling the outlet water temperature with a high degree of accuracy.

Quick step-less control for the setting temperature

When the load rapidly varies and the water temperature deviates from the setting value, the capacity is changed at two times of the normal rate. Realises both the following-up capability and the stability when the temperature does not change.

Accurate control of the water temperature

Controls the compressor capacity minutely and monitors the change of water temperature at a short time interval when the temperature becomes within 1°C of the setting temperature. In addition, It is equipped with a circuit which prevents an extreme repeat of ups and downs.



Various Chiller Control Know-How

Unit number control of compressors

Controls the compressors' on-off by monitoring the operation load of each compressor. This avoids all compressors from operating at a low load, enhancing the energy-saving rate.

Automatic rotation function of compressors

Controls the compressor rotation automatically by monitoring the operation hours of each compressor. This equalises the operation hours of each compressor.

Emergency mode avoids a total stop of the unit

When the malfunction occurs, analyses it and continues the operation by deciding a securely operable circuit in an emergency mode.

Automatic restart from power failure

Demand operation capability

Control Panel Operation

WATER CHILLERS

Equipped with a liquid crystal microcomputer control panel with an advanced, easy-to-use operation management

Multi-display which is easy to check operation data

Only one key manipulation is sufficient for a necessary operation and displays setting data and diverse operation information.

Operation Data Display

▼	W	a	t	e	r	I	n	e	t	T	e	m	p		I	N
	E	v	a	p	:					°C					T	P
	C	o	n	d	:					°C						

▼	N	o	i	C	o	m	p	T	i	m	e				N	1
	P	o	s	t	R	:			M							
	S	u	m	-	R	:					H					
	S	u	m	-	C	:					C				T	M

Main display items

Temperature:
cold water, cooling water, various temperatures of the refrigerant circuit

Pressure:
refrigerant pressure

Valve Step:
compressor capacitance, expansion valve step

Current:
phase current of each compressor

Time:
operation hours for each compressor, on-off count

Self diagnosis capability notifying a malfunction occurrence quickly

Always monitors the operation state and the error code is displayed when a malfunction occurs. The operation state during a malfunction can be checked on the multi-display.

Malfunction Display

▼	CIR2	HISTORY:001
2LC:EEVCom		
13h37m18s	15/12/06	

The operation state at a malfunction is recorded. For the last malfunction, an operation status one minute before the malfunction occurrence is also recorded for each ten seconds, thereby allowing you to carry out a proper maintenance by understanding the malfunction occurrence process.

Preventive maintenance capability detecting a malfunction in advance

The constant monitoring enables to announce an alert based on the change of the operation state. Therefore, a proper maintenance is possible before going into a malfunction.

Administrator privilege capability with a password

A password can be set for changing each setting value. Capable of setting an administrator privilege.

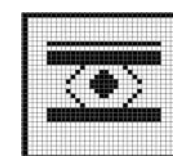
Administrator privilege with a password

Enter password
Password: 1231
to login

In order to set the cold water temperature, the inlet/outlet water temperature, and the remote/at-hand, etc. operation mode, a password can be specified for the administrator privilege.

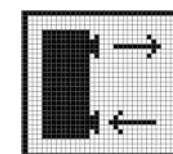
External instruction enables various remote controls

A remote control is possible by responding to external instructions from the central monitor panel, Daikin central control equipment (D-BACS), and full-featured remote-controller, and so on.



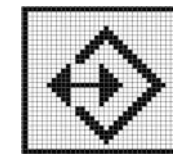
Monitor

Displays the current state of the equipment in detail.



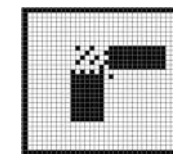
Temperature setting

Sets a control value relating to the water temperature control



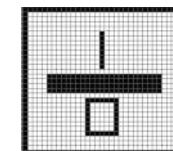
Various setting

Sets a control value relating to the operation and communication (A password is required)



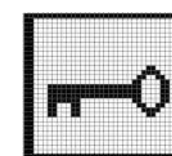
History

Displays the history of malfunctions



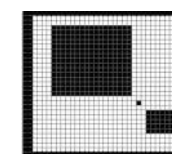
I/O display

Displays the current I/O



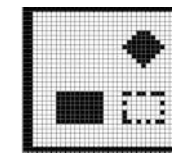
Login/logout

Sets a privilege and a password at login



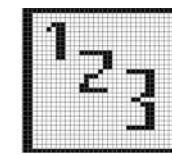
Summary monitor

Displays the current state of equipments as a summary



Alert check

Displays the history of alerts



Information

Displays the equipment information

Network Management

WATER CHILLERS

The optional PC board expands the network management such as an open network and Daikin's original system.

* Modbus and DIII communication cannot be used at the same time.

Unit number control of chillers

Compares the average outlet temperatures during the pump operation and the setting temperature and instructs each chiller using three types of operation instructions: "OFF", "Force 100% operation", and "Capacity control" to decide the number of operating unit. This enables an efficient and energy-saving operation without carrying out partial load of all operating units.



Rotation Function of units

The remote-controller reads the cumulative operation hours of each unit and instructs them to operate, starting with the unit with fewer cumulative operation hours. This can equalise the unit operation.

Connection to open network

Managed by an upper BMS system

Modbus compatible

Capable of connecting with globally popular Modbus as a network available in every layer.

Other equipments management

Other equipments like air-cooled chillers etc. can be managed totally.

Main Operation Item

Operation instruction

Operation mode

Demand operation

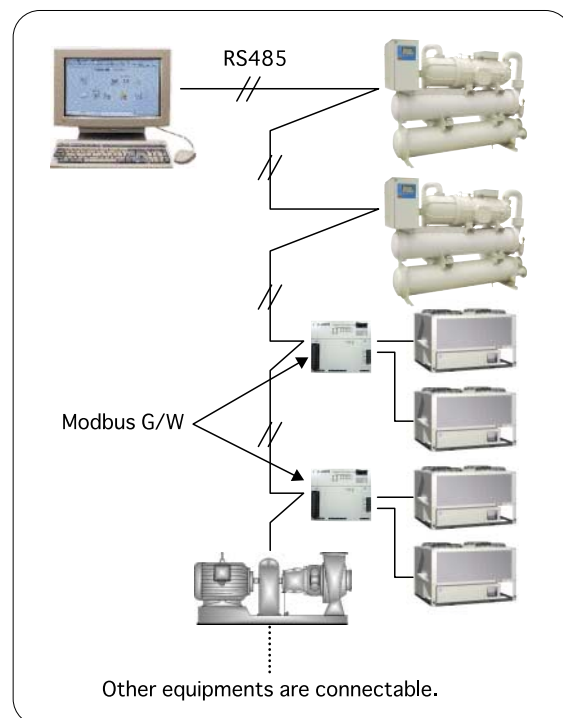
Capacity control setting

Cold water temperature setting

Modbus RTU (transmission code)

RS485 (physical layer)

* Up to 31 units are connectable when water cooled chiller only.



Daikin Control System

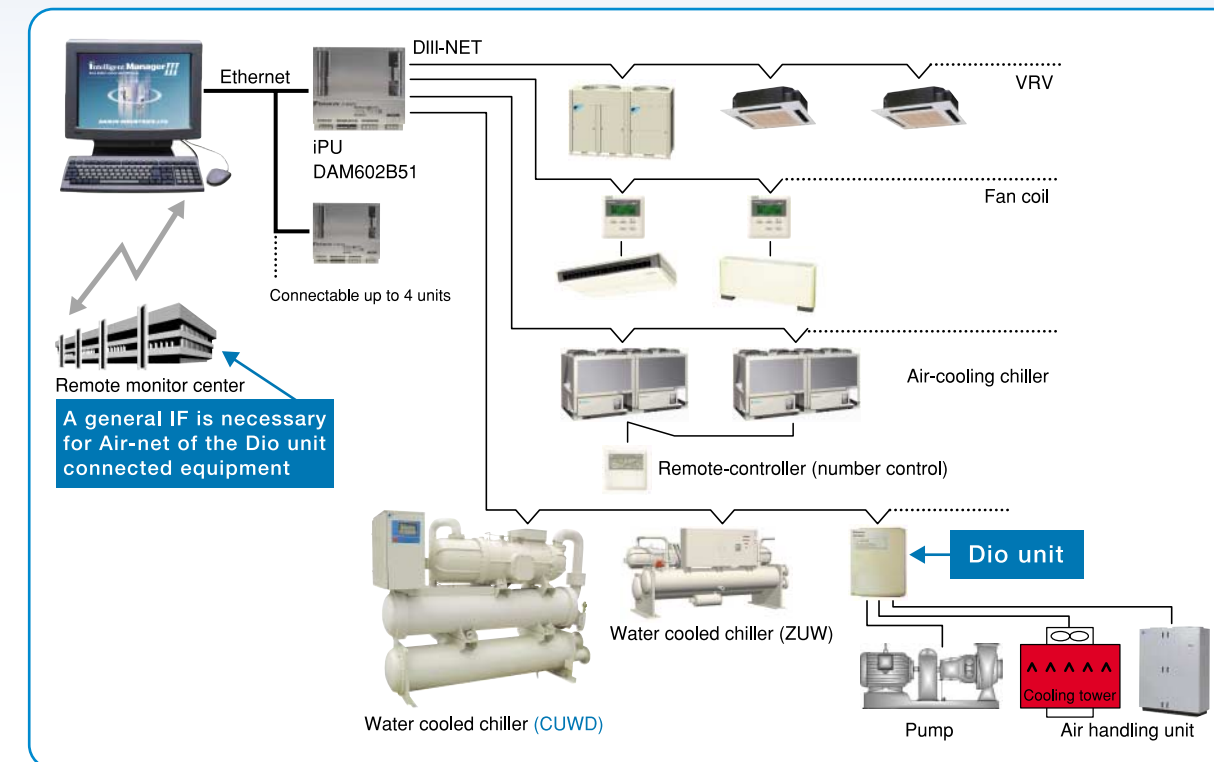
Total solution with Daikin's D-III communication

Combination of VRV and applied systems

Intelligent Manager allows you to manage the building which both Daikin VRV and applied systems are installed by integrating the communication method and both systems can work together. This can save wiring and also avoid a miswiring.

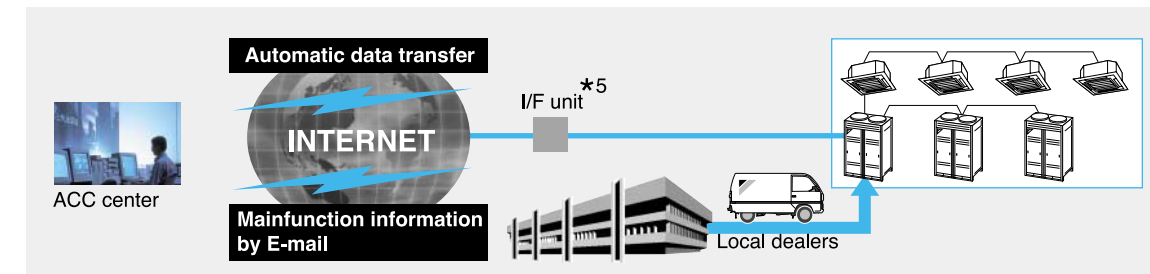
*VRV and chiller D-III lines must be separated from each other.

intelligent-Manager



Air Conditioning Network Service System

Maintenance services that boost profits and customer satisfaction



● 24 hour on-line diagnostic system

● Energy saving and extension of aircon operating life

*1. There are restrictions in applicable areas and release times, therefore please consult us separately for details.
*2. Model name varies upon the system size.
*3. BACnet is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

● Maintenance management via A/C network service system reports

● Reliable service at short lead time

*4. LonWORKS is a registered trademark of Echelon Corporation.
*5. For an I/F unit, one of the following can be selected: intelligent touch Controller, or intelligent Manager III.
*6. Ethernet is a registered trademark of Xerox Corporation.
*7. Refer to the Options page for the name of each model.

■ Specification

Model			CUWD40A5Y	CUWD50A5Y	CUWD60A5Y	CUWD80A5Y	CUWD100A5Y	CUWD120A5Y
*1 Cooling Capacity (50Hz,380V)	USRT		37.5	46.6	56.3	75.4	92.4	115.2
	kW		132	164	198	265	325	405
	kcal/h		113,520	141,040	170,280	227,900	279,500	348,300
*2 Cooling Capacity (50Hz, 380V)	USRT		37.1	46.1	55.7	74.5	91.4	114.0
	kW		131	162	196	262	322	401
	kcal/h		112,294	139,448	168,414	225,327	276,516	344,701
*1 Power Consumption	kW		27.4	34	40.4	55	67	84
*2 Power Consumption	kW		27	34	40	55	67	84
Casing / Color			Ivory White (5Y 7.5/1)					
*1 Chilled Water	m³/h		22.7	28.2	34.1	45.6	55.9	69.7
	ℓ/min		378	470	568	760	932	1161
*2 Chilled Water	gpm		89	111	134	179	219	274
	ℓ/sec		5.6	7.0	8.4	11.3	13.8	17.2
*1 Condenser Water	m³/h		27.4	34.1	41.0	55.0	67.4	84.1
	ℓ/min		457	568	683	917	1124	1402
*2 Condenser Water	gpm		111	138	167	224	274	342
	ℓ/sec		7.1	8.8	10.6	14.2	17.4	21.6
Dimentions (H x W x D)		mm	1580 x 2450 x 650			1840 x 2640 x 780		
Compressor	Type		Semi-Hermetically Sealed Single Screw Type					
	Model		ZHA5LMG2YE	ZHA5WLG2YE	ZHA7MSG2YE	ZHA7WSG2YE	ZHA9LSG2YE	ZHA9WSG2YE
	Motor Output×No.		kW	30 x 1	37 x 1	45 x 1	60 x 1	75 x 1
	Starting Method		△－△ Starting					
	Capacity Control		%	12-100% Continuous Capacity Control				
Condenser	Type		Water Cooled Shell and Low Fin Tube Type					
	Model		CF3220-CA4 x 1	CF3220-CA5 x 1	CF3220-CA6 x 1	CF4520-CA8 x 1	CF4520-CA10 x 1	CF4520-CA12 x 1
Evaporator	Type		Direct Expansion Shell and Tube Type					
	Model		DHD3220-CA4 x 1	DHD3220-CA5 x 1	DHD3220-CA6 x 1	DHD4020-CA8-1 x 1	DHD4020-CA10-1 x 1	DHD4020-CA12-1 x 1
Refrigerant	Refrigerant		R-134a					
	No. of Circuit		1					
	Control		Electronic Expansion Valve					
	Charge	kg	34			65		
Refrigerant Oil			FVC68D					
Refrigerant Oil Charge		ℓ	7.5	7.5	10	10	14	14
Electric Control			PLC Program Controller (Dedicated Controller PCASO of Daikin Central Air Conditioner), LCD Display in Chinese					
Safety Devices			Main Circuit Fuse, Phase Monitor, High/Low Pressure Protector, Over-Current-Sensor (Comp.), Overheat Protector (Comp.), Overheat Sensor for Discharge Gas, Fusible Plug, Freeze-Up Protection Sensor, Operation Circuit Fuse, Safety Valve *3					
Pipe connection	Chilled Water Inlet/Outlet	in	4B Flange (ϕ 114 pipe)			Inlet 6B Flange (ϕ 159 pipe)		
						Outlet 5B Flange (ϕ 140 pipe)		
	Condenser Water Inlet/Outlet	in	4B Flange (ϕ 114 pipe)			5B Flange (ϕ 140 pipe)		
Insulation Material			Polyethelene Foam					
Machine Weight		kg	1050	1100	1200	1680	1850	1950
Operation Weight		kg	1130	1230	1320	1800	2050	2140
Evaporator		ℓ	106	96	88	158	139	137
Standard Accessories			Operation Manual, Spare Fuse, Warranty, Mating Flange					

Note: *1. Cooling capacity is based on the following conditions:
Inlet chilled water temp. 12℃ Outlet chilled water temp. 7℃
Inlet condenser water temp. 30℃ Outlet condenser water temp. 35℃
*2. Cooling capacity is based on the following conditions:
Leaving chilled water temp. 44.0°F Entering condenser water temp. 85.0°F
Flow rate of chilled water 2.4gpm/ton (0.043ℓ /s per kW) Flow rate of condenser water 3.0gpm/ton (0.054ℓ /s per kW)
*3. Safety valve is for CUWD40A5Y, CUWD50A5Y only.
*4. The design pressure on the chilled water side and cooling water side of the standard model is 1MPa.
Applicable design pressure for the container with intensified pressure model (special order model) is:
1.6MPa on the Cooling water side and 1MPa on the chilled water side.

■ Specification

Model			CUWD140A5Y	CUWD160A5Y	CUWD180A5Y	CUWD200A5Y	CUWD220A5Y	CUWD240A5Y	
*1 Cooling Capacity (50Hz,380V)	USRT		131.7	150.7	167.8	184.9	207.6	230.4	
	kW		463	530	590	650	730	810	
	kcal/h		398,180	455,800	507,400	559,000	627,800	696,600	
*2 Cooling Capacity (50Hz, 380V)	USRT		130.2	149.0	166.0	182.9	205.4	228.0	
	kW		458	524	584	643	723	802	
	kcal/h		393,740	450,653	501,837	553,032	621,218	689,402	
*1 Power Consumption	kW		95.4	110	122	134	151	168	
*2 Power Consumption	kW		95	109	121	133	150	167	
Casing / Color			Ivory White (5Y 7.5/1)						
*1 Chilled Water	m³/h		79.6	91.2	101.5	111.8	125.6	139.3	
	ℓ/min		1327	1519	1691	1863	2093	2322	
*2 Chilled Water	gpm		313	358	398	439	493	547	
	ℓ/sec		19.7	22.5	25.1	27.7	31.1	34.5	
*1 Condenser Water	m³/h		96.0	110.1	122.5	134.8	151.5	168.2	
	ℓ/min		1601	1835	2041	2247	2526	2804	
*2 Condenser Water	gpm		391	447	498	549	616	684	
	ℓ/sec		24.7	28.3	31.5	34.7	39.0	43.3	
Dimentions (H x W x D)		mm	1960 x 3070 x 1520						1960 x 3070 x 1580
Compressor	Type		Semi-Hermetically Sealed Single Screw Type						
	Model		ZHA7MSG2YE x 1 ZHA7WSG2YE x 1	ZHA7WSG2YE x 2	ZHA7WSG2YE x 1 ZHA9LSG2YE x 1	ZHA9LSG2YE x 2	ZHA9LSG2YE x 1 ZHA9WSG2YE x 1	ZHA9WSG2YE x 2	
	Motor Output× No.	kW	45 x 1+60 x 1	60 x 2	60 x 1+75 x 1	75 x 2	75 x 1+90 x 1	90 x 2	
	Starting Method		人－△ Starting						
	Capacity Control	%	12-100% Continuous Capacity Control						
Condenser	Type		Water Cooled Shell and Low Fin Tube Type						
	Model		CF4520-CA6 x 1 CF4520-CA8 x 1	CF4520-CA8 x 2	CF4520-CA8 x 1 CF4520-CA10 x 1	CF4520-CA10 x 2	CF4520-CA10 x 1 CF4520-CA12 x 1	CF4520-CA12 x 2	
Evaporator	Type		Direct Expansion Shell and Tube Type						
	Model		DHD4020-CA6 x 1 DHD4020-CA8 x 1	DHD4020-CA8 x 2	DHD4020-CA8 x 1 DHD4020-CA10 x 1	DHD4020-CA10 x 2	DHD4020-CA10 x 1 DHD4020-CA12 x 1	DHD4020-CA12 x 2	
Refrigerant	Refrigerant		R-134a						
	No. of Circuit		2						
	Control		Electronic Expansion Valve						
	Charge	kg	65 x 2						
Refrigerant Oil			FVC68D						
Refrigerant Oil Charge		ℓ	10+10		10+14	14+14			
Electric Control			PLC Program Controller (Dedicated Controller PCASO of Daikin Central Air Conditioner), LCD Display in Chinese						
Safety Devices			Main Circuit Fuse, Phase Monitor, High/Low Pressure Protector, Over-Current-Sensor (Comp.), Overheat Protector (Comp.), Overheat Sensor for Discharge Gas, Fusible Plug, Freeze-Up Protection Sensor, Operation Circuit Fuse, Safety Valve						
Pipe connection	Chilled Water Inlet/Outlet	in	6B Flange (ϕ 159 pipe)					8B Flange (ϕ 219 pipe)	
	Condenser Water Inlet/Outlet	in	5B Flange (ϕ 140 pipe)			5B Flange (ϕ 140 pipe)			
Insulation Material			Polyethelene Foam						
Machine Weight		kg	3380	3520	3690	3860	3970	4070	
Operation Weight		kg	3780	3920	4090	4260	4370	4470	
Evaporator		ℓ	332	316	297	278	276	274	
Standard Accessories			Operation Manual, Spare Fuse, Warranty, Mating Flange						

Note: *1. Cooling capacity is based on the following conditions:
Inlet chilled water temp. 12℃ Outlet chilled water temp. 7℃
Inlet condenser water temp. 30℃ Outlet condenser water temp. 35℃
*2. Cooling capacity is based on the following conditions:
Leaving chilled water temp. 44.0°F Entering condenser water temp. 85.0°F
Flow rate of chilled water 2.4gpm/ton (0.043ℓ /s per kW) Flow rate of condenser water 3.0gpm/ton (0.054ℓ /s per kW)
*3. The design pressure on the chilled water side and cooling water side of the standard model is 1MPa.
Applicable design pressure for the container with intensified pressure model (special order model) is:
1.6MPa on the Cooling water side and 1MPa on the chilled water side.

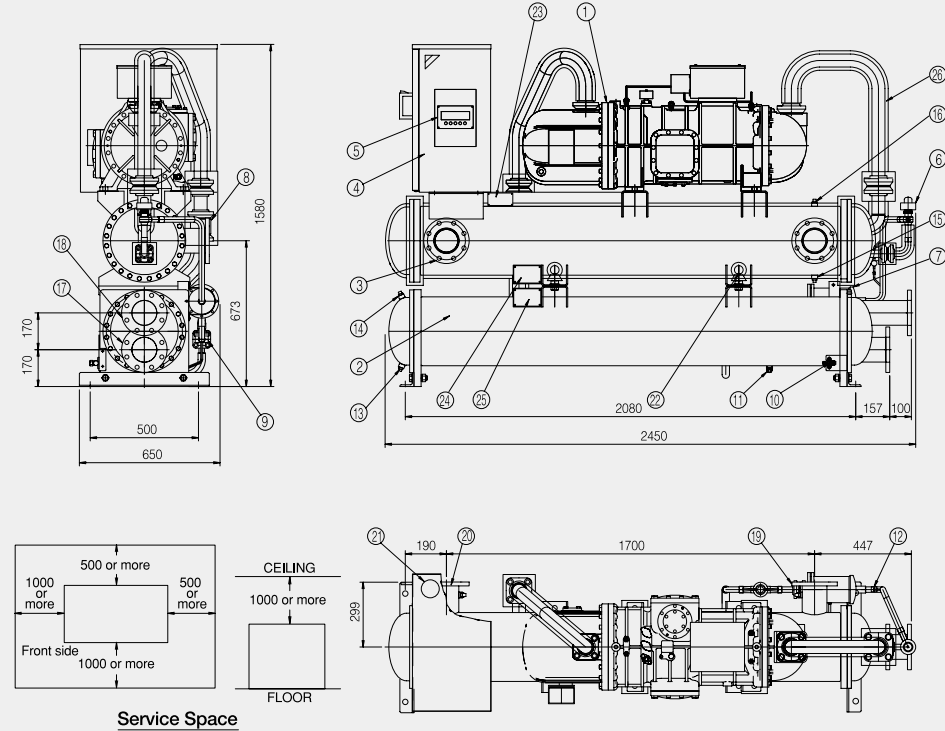
■ Specification

Model			CUWD260A5Y	CUWD280A5Y	CUWD300A5Y	CUWD320A5Y	CUWD340A5Y	CUWD360A5Y
*1 Cooling Capacity (50Hz,380V)	USRT		243.2	260.2	277.3	300.0	322.8	345.5
	kW		855	915	975	1055	1135	1215
	kcal/h		735,300	786,900	838,500	907,300	976,100	1,044,900
*2 Cooling Capacity (50Hz, 380V)	USRT		240.5	257.4	274.3	296.9	319.4	342.0
	kW		846	905	965	1,044	1,123	1,203
	kcal/h		727,161	778,351	829,549	897,734	965,919	1,034,103
*1 Power Consumption	kW		177	189	201	218	235	252
*2 Power Consumption	kW		176	188	200	217	234	250
Casing / Color			Ivory White (5Y 7.5/1)					
*1 Chilled Water	m³/h		147.1	157.4	167.7	181.5	195.2	209.0
	ℓ/min		2451	2623	2795	3024	3254	3483
*2 Chilled Water	gpm		577	618	658	713	767	821
	ℓ/sec		36.4	38.9	41.5	44.9	48.3	51.7
*1 Condenser Water	m³/h		177.5	189.9	202.3	219.0	235.6	252.3
	ℓ/min		2958	3165	3371	3649	3927	4205
*2 Condenser Water	gpm		721	772	823	891	958	1,026
	ℓ/sec		45.7	48.9	52.1	56.4	60.7	64.9
Dimentions (H x W x D)		mm	1960 x 3070 x 2170					
Compressor	Type		Semi-Hermetically Sealed Single Screw Type					
	Model		ZHA7WSG2YE x 2 ZHA9LSG2YE x 1	ZHA7WSG2YE x 1 ZHA9LSG2YE x 2	ZHA9LSG2YE x 3	ZHA9LSG2YE x 2 ZHA9WSG2YE x 1	ZHA9LSG2YE x 1 ZHA9WSG2YE x 2	ZHA9WSG2YE x 3
	Motor Output× No.	kW	60 x 2+75 x 1	60 x 1+75 x 2	75 x 3	75 x 2+90 x 1	75 x 1+90 x 2	90 x 3
	Starting Method		△－△Starting					
	Capacity Control	%	12-100% Continuous Capacity Control					
Condenser	Type		Water Cooled Shell and Low Fin Tube Type					
	Model		CF4520-CA8 x 2 CF4520-CA10 x 1	CF4520-CA8 x 1 CF4520-CA10 x 2	CF4520-CA10 x 3	CF4520-CA10 x 2 CF4520-CA12 x 1	CF4520-CA10 x 1 CF4520-CA12 x 2	CF4520-CA12 x 3
Evaporator	Type		Direct Expansion Shell and Tube Type					
	Model		DHD4020-CA8 x 2 DHD4020-CA10 x 1	DHD4020-CA8 x 1 DHD4020-CA10 x 2	DHD4020-CA10 x 3	DHD4020-CA10 x 2 DHD4020-CA12 x 1	DHD4020-CA10 x 1 DHD4020-CA12 x 2	DHD4020-CA12 x 3
Refrigerant	Refrigerant		R-134a					
	No. of Circuit		3					
	Control		Electronic Expansion Valve					
	Charge	kg	65 x 3					
Refrigerant Oil			FVC68D					
Refrigerant Oil Charge		ℓ	10+10+14	10+14+14	14+14+14			
Electric Control			PLC Program Controller (Dedicated Controller PCASO of Daikin Central Air Conditioner), LCD Display in Chinese					
Safety Devices			Main Circuit Fuse, Phase Monitor, High/Low Pressure Protector, Over-Current-Sensor (Comp.), Overheat Protector (Comp.), Overheat Sensor for Discharge Gas, Fusible Plug, Freeze-Up Protection Sensor, Operation Circuit Fuse, Safety Valve					
Pipe connection	Chilled water Inlet/Outlet	in	8B Flange (φ 219 pipe)					
	Condenser water Inlet/Outlet	in	5B Flange (φ 140 pipe)					
Insulation Material			Polyethelene Foam					
Machine Weight		kg	5430	5610	5780	5890	5990	6090
Operation Weight		kg	6030	6210	6380	6490	6590	6690
Evaporator		ℓ	455	436	417	415	413	411
Standard Accessories			Operation Manual, Spare Fuse, Warranty, Mating Flange					

Note: *1. Cooling capacity is based on the following conditions:
 Inlet chilled water temp. 12°C Outlet chilled water temp. 7°C
 Inlet condenser water temp. 30°C Outlet condenser water temp. 35°C
 *2. Cooling capacity is based on the following conditions:
 Leaving chilled water temp. 44.0°F Entering condenser water temp. 85.0°F
 Flow rate of chilled water 2.4gpm/ton (0.043ℓ/s per kW) Flow rate of condenser water 3.0gpm/ton (0.054ℓ/s per kW)
 *3. The design pressure on the chilled water side and cooling water side of the standard model is 1MPa.
 Applicable design pressure for the container with intensified pressure model (special order model) is:
 1.6MPa on the Cooling water side and 1MPa on the chilled water side.

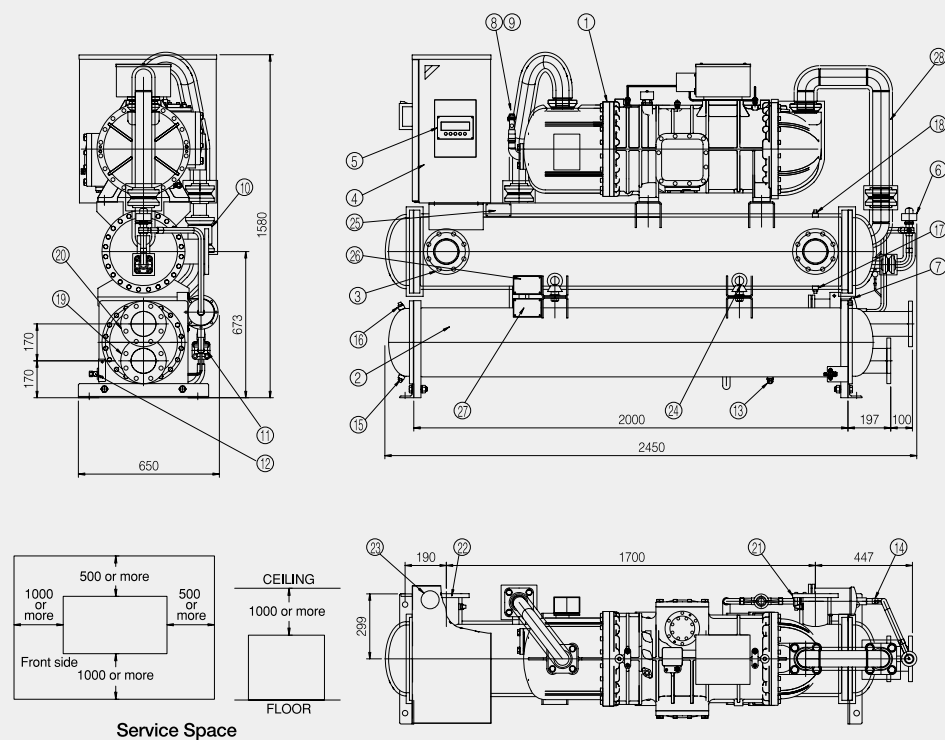
■ Dimension

CUWD40・50A5Y



- ① Compressor
- ② Condenser
- ③ Evaporator
- ④ Switch Box
- ⑤ LCD Control Panel
- ⑥ Electronic Expansion Valve
- ⑦ Filter Dryer
- ⑧ Discharge Check Valve
- ⑨ Liquid Side Stop Valve
- ⑩ Refrigerant Charge Valve
- ⑪ Fusible Plug
- ⑫ Refrigerant Sight Glass
- ⑬ Cooling Water Drain Outlet Rc 1/2
- ⑭ Cooling Water Air Outlet Rc 1/2
- ⑮ Chilled Water Drain Outlet Rc 1/2
- ⑯ Chilled Water Air Outlet Rc 1/2
- ⑰ Cooling Water Inlet 4B (φ114 pipe)
- ⑱ Cooling Water Outlet 4B (φ114 pipe)
- ⑲ Chilled Water Inlet 4B (φ114 pipe)
- ⑳ Chilled Water Outlet 4B (φ114 pipe)
- ㉑ Power Supply Inlet φ83
- ㉒ Suspension Ring
- ㉓ Name Plate (Machine)
- ㉔ Name Plate (Evaporator)
- ㉕ Name Plate (Condenser)
- ㉖ Anti-Dewing Material

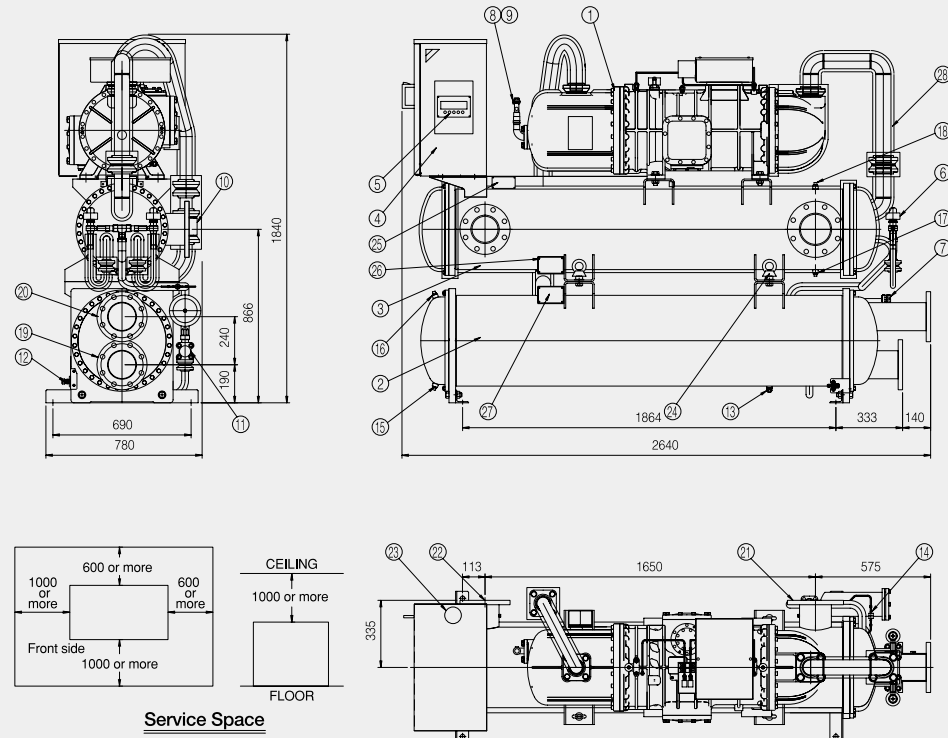
CUWD60A5Y



- ① Compressor
- ② Condenser
- ③ Evaporator
- ④ Switch Box
- ⑤ LCD Control Panel
- ⑥ Electronic Expansion Valve
- ⑦ Filter Dryer
- ⑧ Safety Valve 1-14UNS-2B
- ⑨ Ball Valve NPT5/8-18
- ⑩ Discharge Check Valve
- ⑪ Liquid Side Stop Valve
- ⑫ Refrigerant Charge Valve
- ⑬ Fusible Plug
- ⑭ Refrigerant Sight Glass
- ⑮ Cooling Water Drain Outlet Rc 1/2
- ⑯ Cooling Water Air Outlet Rc 1/2
- ⑰ Chilled Water Drain Outlet Rc 1/2
- ⑱ Chilled Water Air Outlet Rc 1/2
- ⑲ Cooling Water Inlet 4B (φ114 pipe)
- ⑳ Cooling Water Outlet 4B (φ114 pipe)
- ㉑ Chilled Water Inlet 4B (φ114 pipe)
- ㉒ Chilled Water Outlet 4B (φ114 pipe)
- ㉓ Power Supply Inlet φ83
- ㉔ Suspension Ring
- ㉕ Name Plate (Machine)
- ㉖ Name Plate (Evaporator)
- ㉗ Name Plate (Condenser)
- ㉘ Anti-Dewing Material

■ Dimension

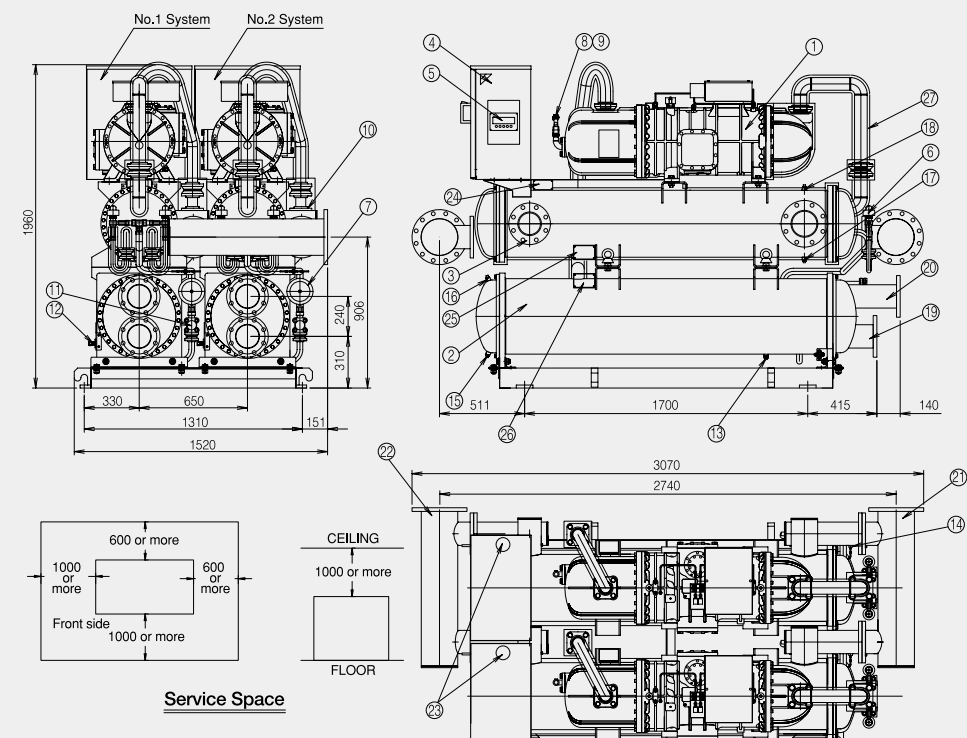
CUWD80A5Y



- ① Compressor
- ② Condenser
- ③ Evaporator
- ④ Switch Box
- ⑤ LCD Control Panel
- ⑥ Electronic Expansion Valve
- ⑦ Filter Dryer
- ⑧ Safety Valve 1-14UNS-2B
- ⑨ Ball Valve NPT5/8-18
- ⑩ Discharge Check Valve
- ⑪ Liquid Side Stop Valve
- ⑫ Refrigerant Charge Valve
- ⑬ Fusible Plug
- ⑭ Refrigerant Sight Glass
- ⑮ Cooling Water Drain Outlet Rc 1/2
- ⑯ Cooling Water Air Outlet Rc 1/2
- ⑰ Chilled Water Drain Outlet Rc 1/2
- ⑱ Chilled Water Air Outlet Rc 1/2
- ⑲ Cooling Water Inlet 5B (ø140 pipe)
- ⑳ Cooling Water Outlet 5B (ø140 pipe)
- ㉑ Chilled Water Inlet 6B (ø159 pipe)
- ㉒ Chilled Water Outlet 5B (ø140 pipe)
- ㉓ Power Supply Inlet ø83
- ㉔ Suspension Ring
- ㉕ Name Plate (Machine)
- ㉖ Name Plate (Evaporator)
- ㉗ Name Plate (Condenser)
- ㉘ Anti-Dewing Material

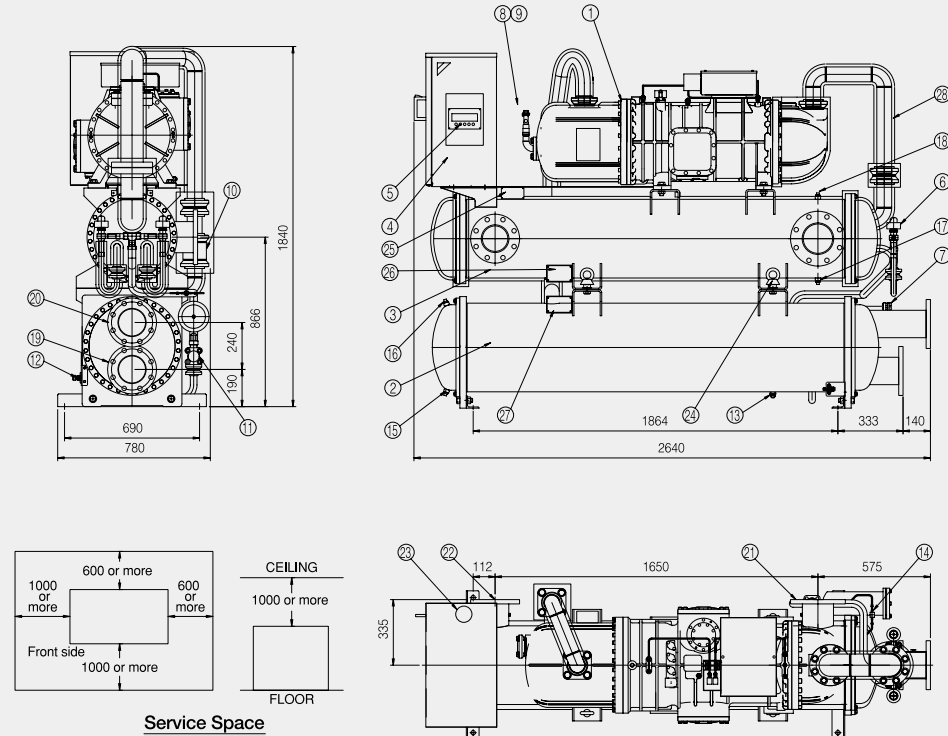
■ Dimension

CUWD140 · 160 · 180 · 200 · 220 · 240A5Y



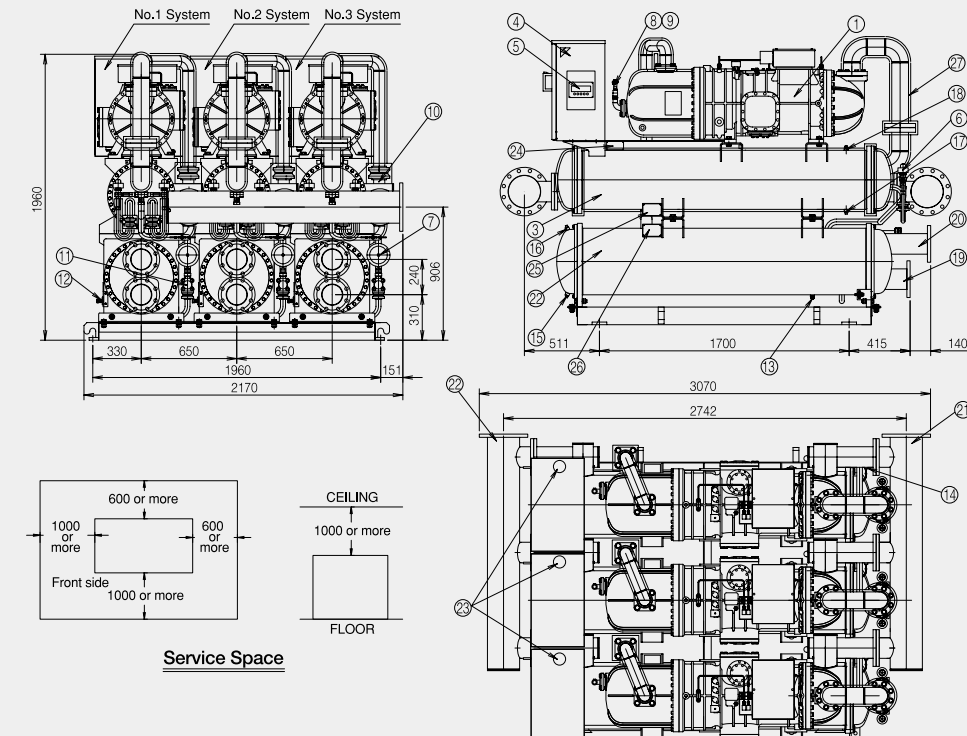
- ① Compressor
 - ② Condenser
 - ③ Evaporator
 - ④ Switch Box
 - ⑤ LCD Control Panel
 - ⑥ Electronic Expansion Valve
 - ⑦ Filter Dryer
 - ⑧ Safety Valve 1-14UNS-2B
 - ⑨ Ball Valve NPT5/8-18
 - ⑩ Discharge Check Valve
 - ⑪ Liquid Side Stop Valve
 - ⑫ Refrigerant Charge Valve
 - ⑬ Fusible Plug
 - ⑭ Refrigerant Sight Glass
 - ⑮ Cooling Water Drain Outlet Rc 1/2
 - ⑯ Cooling Water Air Outlet Rc 1/2
 - ⑰ Chilled Water Drain Outlet Rc 1/2
 - ⑱ Chilled Water Air Outlet Rc 1/2
 - ⑲ Cooling Water Inlet 5B (ø140 pipe)
 - ⑳ Cooling Water Outlet 5B (ø140 pipe)
 - ㉑ Chilled Water Inlet 6B (ø159 pipe)
 - ㉒ Chilled Water Outlet 6B (ø159 pipe)*
 - ㉓ Chilled Water Outlet 6B (ø159 pipe)*
 - ㉔ Chilled Water Outlet 6B (ø159 pipe)*
 - ㉕ Power Supply Inlet ø83
 - ㉖ Name Plate (Machine)
 - ㉗ Name Plate (Evaporator)
 - ㉘ Name Plate (Condenser)
 - ㉙ Anti-Dewing Material
- The data marked with * are only applicable for CUWD240A5Y unit.

CUWD100 · 120A5Y



- ① Compressor
- ② Condenser
- ③ Evaporator
- ④ Switch Box
- ⑤ LCD Control Panel
- ⑥ Electronic Expansion Valve
- ⑦ Filter Dryer
- ⑧ Safety Valve 1-14UNS-2B
- ⑨ Ball Valve NPT5/8-18
- ⑩ Discharge Check Valve
- ⑪ Liquid Side Stop Valve
- ⑫ Refrigerant Charge Valve
- ⑬ Fusible Plug
- ⑭ Refrigerant Sight Glass
- ⑮ Cooling Water Drain Outlet Rc 1/2
- ⑯ Cooling Water Air Outlet Rc 1/2
- ⑰ Chilled Water Drain Outlet Rc 1/2
- ⑱ Chilled Water Air Outlet Rc 1/2
- ⑲ Cooling Water Inlet 5B (ø140 pipe)
- ⑳ Cooling Water Outlet 5B (ø140 pipe)
- ㉑ Chilled Water Inlet 6B (ø159 pipe)
- ㉒ Chilled Water Outlet 5B (ø140 pipe)
- ㉓ Power Supply Inlet ø83
- ㉔ Suspension Ring
- ㉕ Name Plate (Machine)
- ㉖ Name Plate (Evaporator)
- ㉗ Name Plate (Condenser)
- ㉘ Anti-Dewing Material

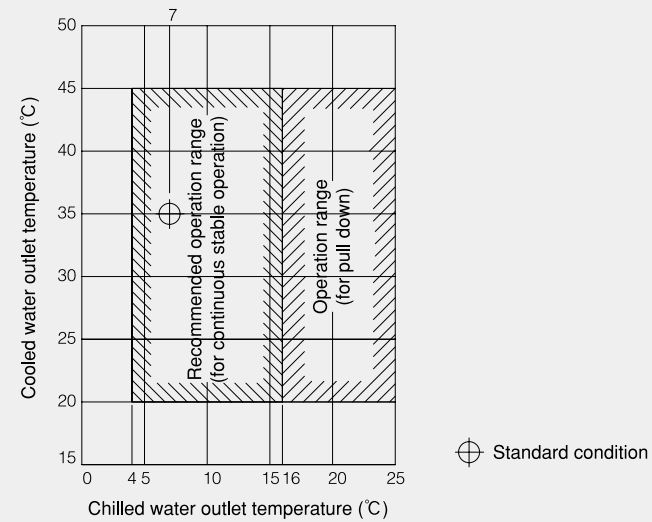
CUWD260 · 280 · 300 · 320 · 340 · 360A5Y



- ① Compressor
- ② Condenser
- ③ Evaporator
- ④ Switch Box
- ⑤ LCD Control Panel
- ⑥ Electronic Expansion Valve
- ⑦ Filter Dryer
- ⑧ Safety Valve 1-14UNS-2B
- ⑨ Ball Valve NPT5/8-18
- ⑩ Discharge Check Valve
- ⑪ Liquid Side Stop Valve
- ⑫ Refrigerant Charge Valve
- ⑬ Fusible Plug
- ⑭ Refrigerant Sight Glass
- ⑮ Cooling Water Drain Outlet Rc 1/2
- ⑯ Cooling Water Air Outlet Rc 1/2
- ⑰ Chilled Water Drain Outlet Rc 1/2
- ⑱ Chilled Water Air Outlet Rc 1/2
- ⑲ Cooling Water Inlet 5B (ø140 pipe)
- ⑳ Cooling Water Outlet 5B (ø140 pipe)
- ㉑ Chilled Water Inlet 8B (ø219 pipe)
- ㉒ Chilled Water Outlet 8B (ø219 pipe)
- ㉓ Power Supply Inlet ø83
- ㉔ Name Plate (Machine)
- ㉕ Name Plate (Evaporator)
- ㉖ Name Plate (Condenser)
- ㉙ Anti-Dewing Material

■ Operation Limits

1. Temperature Range



2. Minimum and Maximum Water Volume

Unit Model	Water Flow Rate (ℓ/m)				Unit Model	Water Flow Rate (ℓ/m)				Unit Model	Water Flow Rate (ℓ/m)			
	Evaporator		Condenser			Evaporator		Condenser			Evaporator		Condenser	
	Min	Max	Min	Max		Min	Max	Min	Max		Min	Max	Min	Max
CUWD40A5Y	125	510	128	864	CUWD140A5Y	475	1793	454	3060	CUWD260A5Y	903	3269	862	5809
CUWD50A5Y	155	630	157	1063	CUWD160A5Y	560	2026	530	3570	CUWD280A5Y	966	3499	929	6263
CUWD60A5Y	195	780	189	1275	CUWD180A5Y	623	2256	597	4024	CUWD300A5Y	1029	3729	996	6717
CUWD80A5Y	280	1013	265	1785	CUWD200A5Y	686	2486	664	4478	CUWD320A5Y	1081	4046	1061	7156
CUWD100A5Y	343	1243	332	2239	CUWD220A5Y	738	2803	729	4917	CUWD340A5Y	1133	4363	1126	7595
CUWD120A5Y	395	1560	397	2678	CUWD240A5Y	790	3120	794	5356	CUWD360A5Y	1185	4680	1191	8034

3. Minimum Water Volume of Internal System

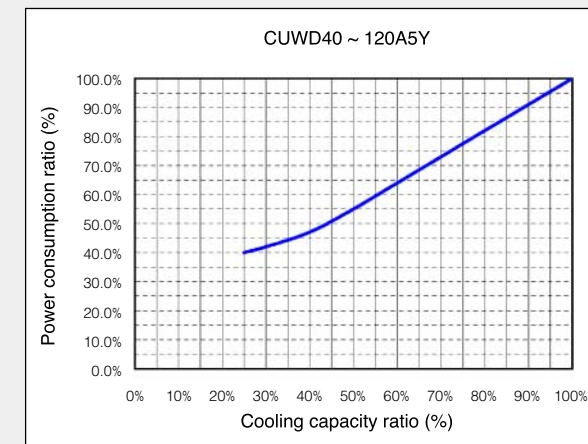
Unit Model	CUWD40A5Y	CUWD50A5Y	CUWD60A5Y	CUWD80A5Y	CUWD100A5Y	CUWD120A5Y
Minimum Water Volume(ℓ)	450	550	670	900	1100	1370
Unit Model	CUWD140A5Y	CUWD160A5Y	CUWD180A5Y	CUWD200A5Y	CUWD220A5Y	CUWD240A5Y
Minimum Water Volume(ℓ)	1570	1800	2000	2200	2470	2740
Unit Model	CUWD260A5Y	CUWD280A5Y	CUWD300A5Y	CUWD320A5Y	CUWD340A5Y	CUWD360A5Y
Minimum Water Volume(ℓ)	2900	3100	3300	3570	3840	4110

Note: The system minimum water quantity of the table above is set based on the standard accuracy of water temperature. The minimum water supply changes respectively with the accuracy.Default Setting

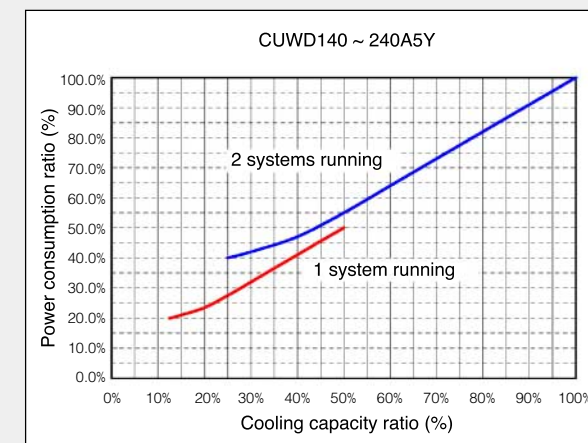
Minimum system water volume changes with temperature precision as follows

Water Temperature Precision	Minimum Water Volume of Internal System
1°C	200%
2°C (Default Setting)	100%
4°C	50%

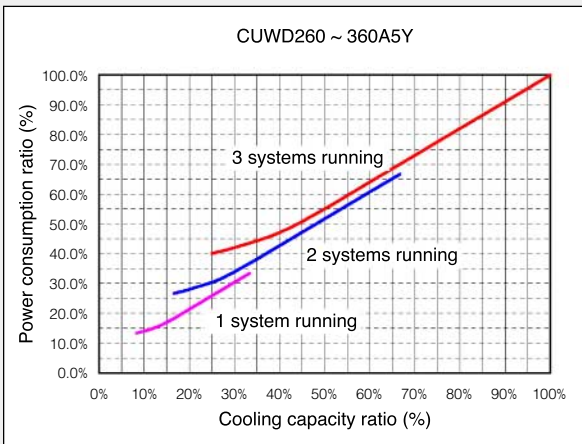
4. Part Load Curve



CUWD40 ~ 120A5Y	Capacity (%)	100	90	80	70	60	50	40	30	25
	Power (%)	100	91	82	73	64	55	47	42	40



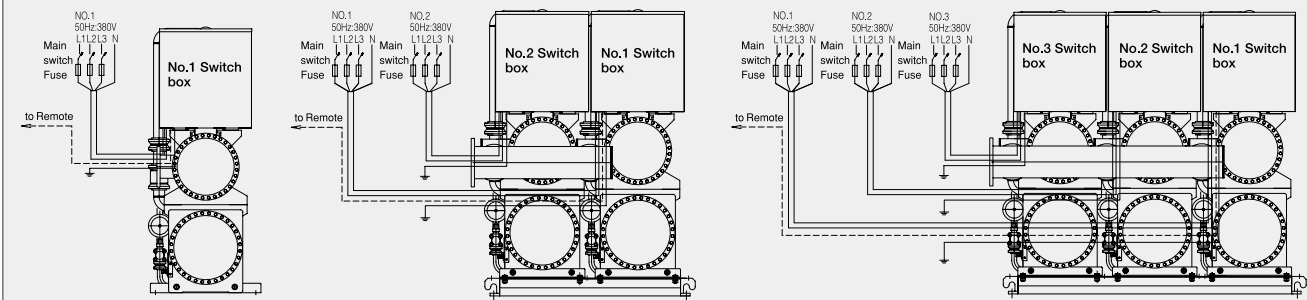
CUWD140 ~ 240A5Y	2 systems running									
	Capacity (%)	100	90	80	70	60	50	40	30	25
	Power (%)	100	91	82	73	64	55	47	42	40
	1 system running									
	Capacity (%)	50	45	40	35	30	25	20	15	13
	Power (%)	50	46	41	37	32	28	24	21	20



CUWD260 ~ 360A5Y	3 systems running									
	Capacity (%)	100	90	80	70	60	50	40	30	25
	Power (%)	100	91	82	73	64	55	47	42	40
	2 systems running									
	Capacity (%)	67	60	53	47	40	33	27	20	17
	Power (%)	67	61	55	49	43	37	31	28	27
	1 system running									
	Capacity (%)	33	30	27	23	20	17	13	10	8
	Power (%)	33	30	27	24	21	18	16	14	13

1. This conditions for this figure are as follows:
chilled water outlet 7°C condenser water inlet 30°C constant. The water volume corresponds to our standard nominal water for both chilled and condenser water and all other specification are based on our DAIKIN standard specification.
2. The cooling capacity and power consumption at cooling capacity ratio 100% have the standard nominal performance of the chiller.
3. This figure indicates the characteristics for CUWD-A5Y series. The numerical values slightly differ among models or depending on the actual operation requirements and design specifications.
4. The minimum capacity control value (cooling capacity ratio%) is approx 25% in relation to the nominal of the chiller. Accordingly where the customer's specification is lower than the chiller nominal capacity. The minimum capacity control value for the customer's specification becomes greater than 25%.

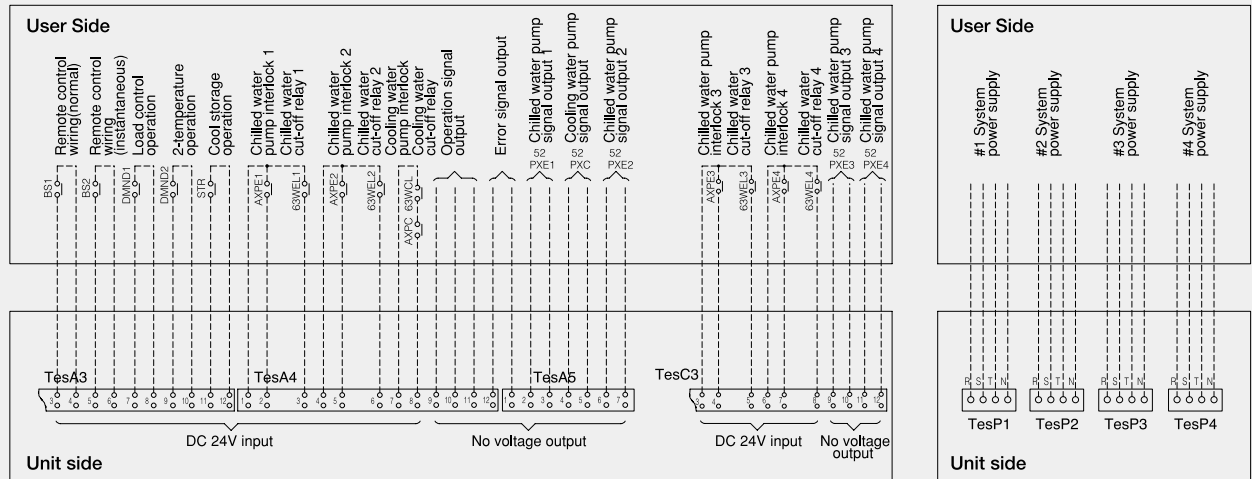
Field wiring



Unit model	Cable Specifications (mm ²)	Unit model	Cable Specifications (mm ²)
CUWD40A5Y	3x16+1x10	CUWD200A5Y	(3x70+1x35)x2
CUWD50A5Y	3x25+1x16	CUWD220A5Y	(3x70+1x35)+(3x95+1x50)
CUWD60A5Y	3x25+1x16	CUWD240A5Y	(3x95+1x50)x2
CUWD80A5Y	3x50+1x25	CUWD260A5Y	(3x50+1x25)x2+(3x70+1x35)
CUWD100A5Y	3x70+1x35	CUWD280A5Y	(3x50+1x25)+(3x70+1x35)x2
CUWD120A5Y	3x95+1x50	CUWD300A5Y	(3x70+1x35)x3
CUWD140A5Y	(3x50+1x25)+(3x25+1x16)	CUWD320A5Y	(3x70+1x35)x2+(3x95+1x50)
CUWD160A5Y	(3x50+1x25)x2	CUWD340A5Y	(3x70+1x35)+(3x95+1x50)x2
CUWD180A5Y	(3x50+1x25)+(3x70+1x35)	CUWD360A5Y	(3x95+1x50)x3

Note: 1. The cable specification in the above table is for reference only. Because many factors are involved, such as cable setting methods, cable types, etc., accounting calculation should be done according to the actual engineering condition and relevant electrical standards.
2. In case of great power supply voltage fluctuation more than $\pm 2\%$, please increase the power supply specifications properly.

Wiring Diagram



Important Notes

1. Please carry out the wiring work strictly according to the power supply specifications shown in the above diagram, or excessive power supply may burn the circuit board.

About remote control wiring

1. When you perform remote control with normal contact, please connect BS1, set "remote field control" on control panel to "remote", and set the operation mode to normal mode.
2. When you perform remote control with instantaneous contact, please connect BS1 and BS2 at the same time, set "remote field control" on control panel to "remote", and set the operation mode to instantaneous mode.

About load control operation

1. Load control operation is realised by controlling the maximum load of the compressor. If you control with load control operation, please connect DMN1 contact, set the operation mode in "Operation mode 1" to "load control", and set the maximum load.

About 2-temperature control

1. Connect DMN2 and set the operation mode in "Operation mode 1" to "2-temperature control" to activate this function.

About cool storage operation

1. Connect STR and set the operation mode in "Operation mode 1" to "2 cool storage operation" to activate this function.

About connecting cooling water pump and chilled water pump

1. Cooling water pump interlock and cooling water cut-off relay must be connected, or unit cannot be started.
2. Chilled water pump interlock and chilled water cut-off relay must be connected, or unit cannot be started.

About operation power supply

1. The voltage of the input part on unit side is DC 24V. We require that user inputs passive on/off signal to the unit.
2. The output part on unit side is of passive on/off signal. The following two power supplies to be connected by the user are available.
Power supply AC 250V with current not more than 5A
Power supply DC 5V with current not less than 100mA

Operation output signal

- Stopped status: NC contact (9, 11) closed
NO contact (9, 10) open
Operating status: NO contact (9, 11) open
NC contact (9, 10) closed

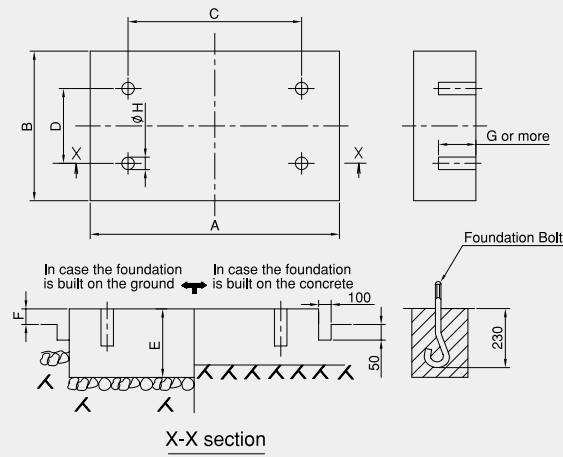
Error output signal

- Normal operation: open
Abnormal operation: closed

About multi-system units

1. The wiring diagram is made referring to 4-system units, in condition that each of main power supply wiring, chilled water pump signal output, chilled water pump interlock and chilled water cut-off relay has 4 systems. If there are no corresponding systems in your unit, there are no corresponding contacts.

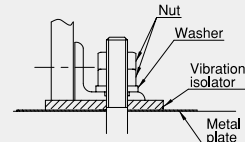
■ Foundation



Unit Model	A	B	C	D	E	F	G	H	Foundation Bolt	
									Size	Q'ty
CUWD40~60A5Y	2680	950	2080	500	400	100	350	150	M20X300	4
CUWD80~120A5Y	2730	1350	1864	690	400	100	350	150	M20X300	4
CUWD140~240A5Y	2850	1850	1700	1310	500	100	350	200	M20X300	4
CUWD260~360A5Y	2850	2500	1700	2170	500	100	350	200	M20X300	4

Note:

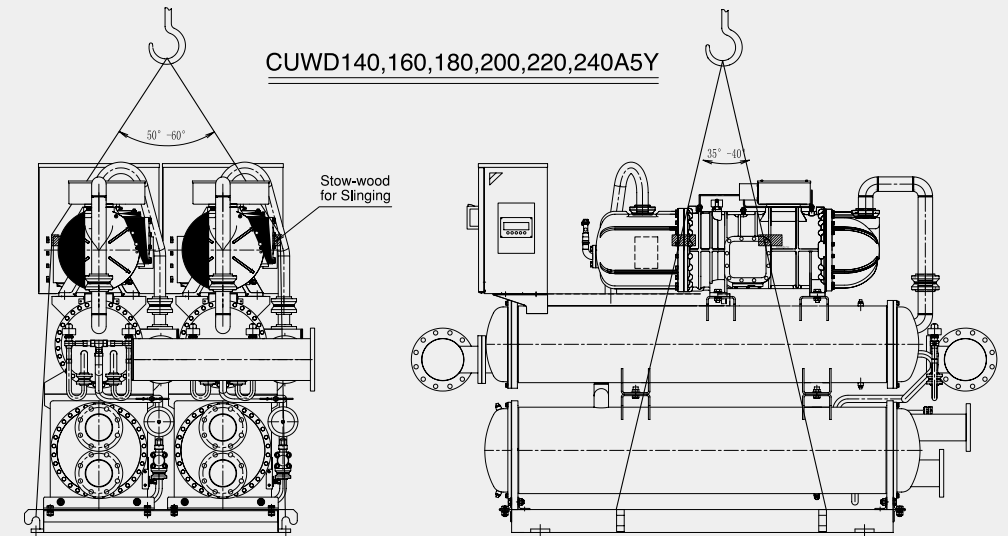
- The measurements tabulated are based on the assumption that the base is on the ground or on a thin concrete floor. If the base is made on a rigid concrete floor, it is possible to include the thickness of the concrete floor in that of the base.
- If the base is made on a concrete floor, be sure to provide a ditch as shown above. It is important to provide proper drainage regardless of whether the base is made on the ground or on concrete.
- Ingredient ratio of the concrete is standard: cement:1, sand:2, gravel:4.
- Insert an iron bar of $\phi 10$ every 300mm.
- The edges of the concrete base should be smooth.
- The unit's vibration is so small (3um of the observed amplitude) that installation without a vibration isolator could be considered. The figure on the right is only an example.



Example of Installation and Position of Unit

■ Hoisting Point : CUWD140,160,180,200,220,240A5Y

〈When slinging the chiller, please according to the following main points〉

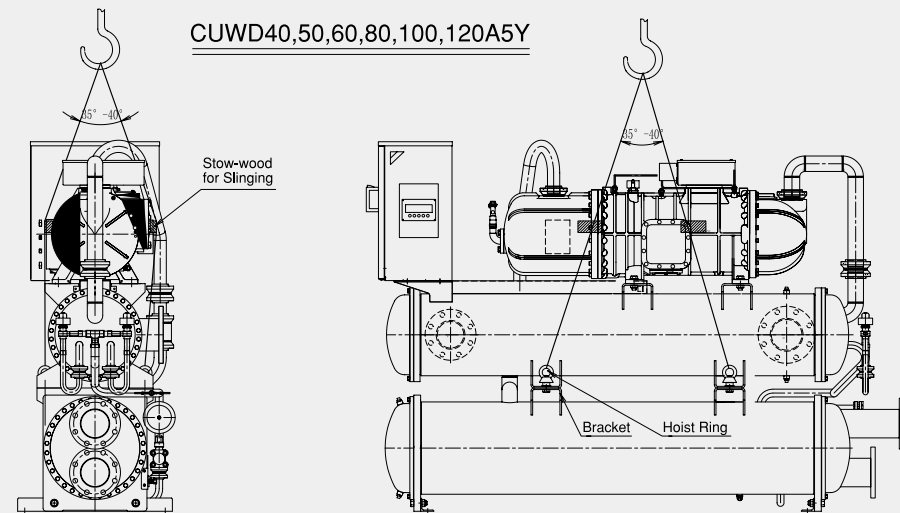


Note:

- When slinging the chiller, use the stow-wood as the left figure show.
- When slinging the chiller, use some wadding to underlay between the slings and the chiller, in order to protect the surface of the chiller.
- The sling can not touch the compressor switch box.

■ Hoisting Point : CUWD40,50,60,80,100,120A5Y

〈When slinging the chiller, please according to the following main points〉

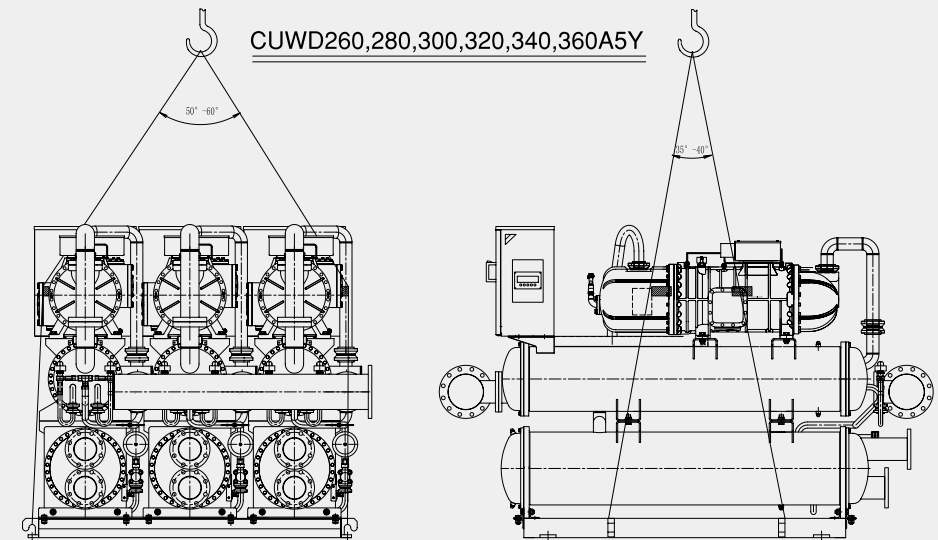


Note:

- When slinging the chiller, use the stow-wood as the left figure show.
- When slinging the chiller, use some wadding to underlay between the slings and the chiller, in order to protect the surface of the chiller.
- The sling can not touch the compressor switch box.

■ Hoisting Point : CUWD260,280,300,320,340,360A5Y

〈When slinging the chiller, please according to the following main points〉



Note:

- When slinging the chiller, use the stow-wood as the left figure show.
- When slinging the chiller, use some wadding to underlay between the slings and the chiller, in order to protect the surface of the chiller.
- The sling can not touch the compressor switch box.

Water-Cooled Screw Compressor Chiller CUWD40~360A5Y

PART 1 - GENERAL

1.01 SUMMARY

Section includes design, performance criteria, refrigerants, controls, and installation requirements for water-cooled screw compressor packaged chillers.

1.02 REFERENCES

- A) Comply with applicable Standards JIS by Japan, GB/T by China.
- B) Condenser and evaporator comply with Chinese pressure vessel standard.

1.03 SUBMITTALS

Submit shop drawings and product data in accordance with contract specifications.

Submittals shall include the following:

- A) Dimensioned plan and elevation view drawings, required clearances, and location of all field connections.
- B) Summary of all auxiliary utility requirements such as: electricity, water, compressed air, etc. Summary shall indicate quality and quantity of each required utility.
- C) Single-line schematic drawing of the field power hookup requirements, indicating all items that are furnished.
- D) Schematic diagram of control system indicating points for field connection. Diagram shall fully delineate field and factory wiring.
- E) Installation manual.
- F) Operation manual.
- G) Drawing indicate how to hang chillers.
- H) Foundation drawing for the chillers.
- I) Accessories for chillers.

1.04 QUALITY ASSURANCE

- A) Qualifications: Equipment manufacturer must specialise in the manufacture of the products specified and have five years experience with similar equipment and the refrigerant offered.
- B) Regulatory Requirements: Comply with the codes and standards specified.
- C) The chiller manufacturing facility must be ISO certified.
- D) The evaporator and condenser belonging to the pressure vessel. The manufacturer must own the pressure vessel product certificate.
- E) Chillers shall be tested through all items.

1.05 DELIVERY AND HANDLING

- A) Chillers shall be delivered to the job site assembled and charged with refrigerant and oil by the manufacturer.
- B) Comply with the manufacturer's instructions for rigging and handling equipment.
- C) Commissioning of the Chillers must be carried out by the authorised unit in principle.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Basis of Design - DAIKIN model CUWD, including the standard product features and all special features required per the plans and specifications.
- B. Expansion of design-DAIKIN can reconstruct the unit in according to user's request, change the direction of cooling or cooled water's outlet and inlet pipe change the maximum pressure of condenser and evaporator. Change temperature of cooled water into special value.

2.02 UNIT DESCRIPTION

- A. Condenser and evaporator manufactured by certificated company.
- B. Condenser passed 2.5MPa gas-tight test, 1.2 times the working pressure test.
- C. Evaporator passed 1.4MPa gas-tight test, 1.2 times the working pressure test.
- D. The semi-hermetic, single rotary screw compressors was adopted. The items of each compressor has been tested. Such as shake, noises, temperature, performance, etc.
- E. Electronic expansion valve been applied to CUWD-A5Y chillers.
- F. The program adjust the load within the range of 25%~100% through the Electronic expansion valve in accordance with the temperature sensor.
- G. CUWD40~120A5Y shall consist one compressor, one shell-and-tube evaporator; one shell-and-tube water-cooled condensers.
- H. CUWD140~240A5Y shall consist two isolated systems. one system consist one compressors, one shell-and-tube evaporator; one shell-and-tube water-cooled condensers. control system and all components necessary for controlled unit operation .Each system can work solely .If one system need be examined and repaired, other system can keep working.
- I. CUWD260~360A5Y shall consist three isolated systems. control system and all components necessary for controlled unit operation. Each system consist one compressors, one shell-and-tube evaporator; one shell-and-tube water-cooled condensers .Each system can work solely. If one system need be examined and repaired, the other systems can keep working.
- J. Chillers make use of R-134a refrigerant.

2.03 DESIGN REQUIREMENTS

- A. General: Provide a complete screw compressor packaged chiller as specified herein and as shown on the drawings. The unit(s) shall be in accordance with the standards referenced in section 1.02 and any local codes in

effect.

- B. Performance: Refer to the schedule of performance on the drawings. Performance shall be in accordance with 18430.1-2007 by China.
- C. Acoustics: Sound for the unit shall not exceed the following tabulated levels. When needed to achieve these levels, the manufacturer shall provide the necessary sound treatment. Acceptable sound attenuation devices include, but are not limited to compressor sound blankets, low-sound fans and discharge gas mufflers. Chiller performance, affected by the use of these devices, shall meet or exceed the scheduled performance requirements. Sound data shall be in one-third octave bands and be provided with the quotation. Sound measurements are to be taken in accordance with JB/T4330-1999 by China.

2.04 CHILLER COMPONENTS

- A. Compressors: The compressors shall be semi-hermetic, single rotor, rotary screw type with internal oil separator. The compressor motor shall be refrigerant gas cooled, high torque, induction type, two-pole, with inherent thermal protection on all three phases and shall be mounted on RIS vibration isolator pads.
- B. Electric Motors: Compressor motors shall be high torque, two pole, semi-hermetic, squirrel cage induction type with inherent thermal protection on all three phases and cooled by suction gas. Full-load power factor shall be, at minimum, 0.90. Motors not meeting this minimum power factor must be capacitor-corrected to 0.90 or better.
- C. Motor Starters (each compressor): The compressor using wye-delta starters.
- D. Evaporator: The evaporator shall be direct expansion, shell-and-tube type with copper tubes rolled into steel tube sheets. It shall be insulated with 15mm closed cell polyurethane insulation and designed for 1.0MPa water side working pressure and 1.4MPa refrigerant side pressure. It shall be designed in accordance with GB150-1998 by China, JB-T4750-2003 by China.
- E. Condensers: Horizontal shell and finned tube type with steel shell and integral finned copper tubes rolled into steel tube sheets. The condenser shall be equipped with intermediate tube supports and construct in accordance with GB150-1998 by China, JB-T4750-2003 by China, GB151-1999 by China. It shall be designed for 1.0MPa water side working pressure and 2.5MPa refrigerant side pressure.
- F. Refrigerant Circuit: The unit shall have more refrigerant circuits, independent of each other. Each circuit shall be equipped with one compressor, one microprocessor controller, expansion valve, discharge check valve, liquid line shut off valves, replaceable core filter-dryers, sight-glass with moisture indicator. Each circuit shall be capable of operating independently, not being disabled in the event of fault(s) on the other circuit(s).
- G. Control System:
 - 1. Make use of LCD program controller. LCD (Liquid Crystal Display) panel adopted to control the unit.
 - 2. All power and control circuit have been assembled , passed the anti-voltage and insulation test before leave factory.
 - 3. Program controller has functions of state setting, temperature setting, run state choice and abnormality display.
 - 4. On/Off of unit can be realised both on control pane and remote control.
 - 5. Switch box has many special ports for remote circuit, pump circuit, remote alarm and other control circuit.
 - 6. Capacity control send message to the electric valve to realise 25%~100% stepless capacity change in according to the water temperature by the temperature sensor.
 - 7. Capacity control send message to the electric valve to realise 100%~70%~40% capacity change in according to the water temperature by the temperature sensor.
 - 8. Compulsory capacity control in accordance with user's request .For the multi-system unit, user can also set number of running system.
 - 9. Control panel can show both all dates and all running conditions.
 - 10. Either inlet temperature or outlet temperature of cooled water can be set in accordance with the user's request.
 - 11. When abnormality happen, abnormal code showed on the LED panel, thus, abnormality can be find and solved rapidly and accurately.
 - 12. CUWD~A5Y chillers can monitor at most eight chillers through DAIKIN BMS system. Monitor items include Remote control, running condition , alarm analysis. In order to enhance administration efficiency. The manufacture responsible for providing the DD (Dynamic Data Exchange), the users can reprogram in accordance actual situation.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The chillers have been tested and running test ,make sure that no problem will happen in the location.
- B. Install in strict accordance with manufacturer's requirements, shop drawings, and contract documents.
- C. Adjust and level chiller in alignment on supports.
- D. Foundation must be made up in accordance with the foundation drawing.
- E. Coordinate electrical installation with electrical contractor.
- F. Coordinate controls with control contractor.
- G. Provide all appurtenances required to realise a fully operational and functional chiller.

3.02 START-UP

- A. Realise proper charge of refrigerant and oil.
- B. Provide testing, and starting of machine, and instruction to the Owner in its proper operation and maintenance.